Surface Waters & Riparian Areas Summary

BioFinder 4.0   2023   www.BioFinder.vt.gov

Surface Waters and Riparian Areas

Surface Waters and Riparian Areas includes all rivers, streams, lakes, and pondsand the valley bottoms in which rivers and streams flow. the valley bottoms are areas of alluvial soils (soils deposited by flowing water) through which rivers and streams migrate over time and where seasonal river or stream flooding is expected.

Why is it Important?

Vermont's rivers, streams, lakes, and ponds provide vital habitat for a rich assemblage of aquatic species, including fish, amphibians, reptiles, invertebrates (e.g., insects, mussels, snails, worms, freshwater sponges), and plants. This represents an enormous contribution to Vermont's biological diversity. The ecological integrity of an aquatic system is dependent on the condition of the watershed in which it occurs but is also tied to the condition of the riparian area adjacent to the stream or pond. Rivers and streams must have access to their floodplains and freedom to meander within their valley bottoms or river corridors. Naturally vegetated riparian areas provide many ecological functions, including stabilizing shorelines against erosion, storage of flood waters, filtration and assimilation of sediments and nutrients, shading of adjacent water to help moderate water temperatures, and direct contribution of organic matter to the surface water as food and habitat structure. Riparian areas are also essential habitat for many species of wildlife that are closely associated with the terrestrial and aquatic interface, including mink, otter, beaver, kingfisher, spotted sandpiper, and wood turtle. The shorelines and riparian areas of rivers and lakes support floodplain forests, several other rare and uncommon natural communities, and many species of rare plants and animals. In addition to these ecological functions that are tied to aquatic systems, the network of riparian areas provides a crucial element of landscape connectivity for plant and animal movement in response to climate change. Although many riparian areas and river corridors are highly altered by agriculture, roads, and urbanization, the risk of flooding serves as a natural deterrent for future development.

How was it made?

This dataset was first created in 2015 for use in BioFinder and Vermont Conservation Design and was not changed for the 2023 version.

The Surface Waters and Riparian Areas dataset brings together three different mapped layers. First is all lakes and ponds from the Vermont Hydrographic Dataset with a 100 foot buffer to capture shore habitats. Second is all rivers and streams from the Vermont Hydrographic Dataset with a buffer to include adjacent streamside vegetation (Buffer distance changes based on how far up the watershed the stream is – called "Stream Order". And third is a model of "Valley Bottom" Land Type

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Associations that was created by Ferree & Thompson in 2008. To learn more about the previous (2015) product see the Vermont Conservation Design Landscape report

Highest Priority and Priority Surface waters are differentiated based on the presence of development. *Highest Priority* Surface Waters include the entire aquatic network of lakes, ponds, rivers, and streams and the valley bottoms in which the rivers and streams occur, excluding developed land. But they do include a buffer on the Vermont hydrography layer that is proportional to stream order. (so places in the Surface Water dataset closest to a waterbody are Highest Priority regardless of whether they are developed or not.) *Priority* Surface Waters are portions of the aquatic network of lakes, ponds, rivers, streams and valley bottoms that include development and are outside of the buffer zone. These places are still ecologically important because of how close they are to a waterbody, regardless of any development that has occurred there.

To get more technical information about the Surface Waters and Riparian Areas Component, see the see the 2023 Technical Abstract